Setting the right framework for modern financial markets

Lessons learned from the recent crisis

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The current financial crisis is a watershed event that will require comprehensive action by the financial industry to restore confidence in financial institutions in general and the market for structured credit products specifically. The originate-and-distribute model will survive, but will undergo modification and will require banks to upgrade their operations. An improvement in risk management (both in approach and process) is the most important area, with additional focus on liquidity management and derivatives markets infrastructure. Regarding valuation issues, reform efforts must recognise that this is not "just" an accounting issue. Changes must respect the benefits of fair value accounting, but, at the same time, address the issues of illiquid markets, procyclicality and consistency between accounting standards.

For more than a year now, global financial markets have been in the grip of a crisis that already ranks amongst watershed events in financial history. Reflecting this, the crisis has triggered a fundamental and wide-ranging review of every part of the financial system, spanning the entire range from supervisory structures and financial regulation to market infrastructures, from banks' risk management processes to their business strategies. Indeed, looking at the long lists of recommendations which have been produced as lessons learned by both the official and the private sector, it is no exaggeration to claim that no stone has been left unturned. Considering the severity of losses suffered by many financial institutions and the widespread loss in confidence within the financial system, nothing less is warranted. Yet, at the same time it will be important not to throw out the baby with the bathwater: financial innovations such as securitisation and structured credit products must be improved upon, not eliminated.

THE REAL BACKGROUND TO THE CRISIS

The financial crisis that is plaguing global financial markets has a background in the real economy. The importance of this is often seriously underestimated in comparison with the causes that lie directly within the financial sector itself and that are usually held out as being primarily responsible for the crisis. In fact, as any major financial crisis, it is the result of the confluence of several factors. But there can be no doubt that the US real estate market is at the epicentre of the crisis and is pivotal for its course: neither can the crisis be understood without understanding events in the US housing markets, nor can financial stability return without their stabilisation. It must be borne in mind that, given the size of the US mortgage debt market (USD 13 trillion), even a comparatively small change in asset values quickly translates into enormous losses in the financial system (*e.g.* USD 650 billion for a 5% change in asset values). The reality is that the United States has been in the worst real estate recession ever since the burst of the bubble that had led to a doubling of real estate values between 2000 and 2006. Prices have fallen more than 15% from their peak and are likely to fall further. Already, many borrowers are not able to service their debt and many more will not be able to do so once teaser rates and variable interest rates are reset; thus, default rates will rise further. As a consequence, financial stability will only be restored if and when the crisis in US real estate markets is resolved.

It should be pointed out that some of the rise in US building activity and real estate valuations was, and still is, fundamentally justified given the favourable demographic development in many US states. However, house price developments eventually went beyond what was justified by fundamentals alone. Essentially, what fuelled house price developments beyond sustainable levels were two factors: first, the global liquidity glut that preceded the crisis and, second, financial innovation.

The liquidity glut in turn was the result of, on the one hand, a US monetary policy that was too loose and has been mirrored in many emerging market countries that peg their national currencies to the dollar. On the other hand, many emerging markets, especially those in Asia, have a structural savings-investment gap, with surplus funds being invested in US financial assets, thereby driving down yields in the United States. Abundant liquidity and underpriced risk prompted individuals and companies to leverage up. This has been particularly visible in the drastic increase in household indebtedness in many countries, especially the United States. As a mirror image on the investor side, the consequence of low nominal interest rates in the United States –and, spreading from there, worldwide– was a search for yield, as investors tried to meet their (nominal) performance targets. Low interest rates, in conjunction with low inflation rates and low market volatility of real as well as financial variables, led to a period of unusually benign financial markets in general and historically low default rates in particular. This environment dulled risk consciousness and led some to take on risk that, in retrospect, was underpriced. It also encouraged some investors to indulge in maturity transformation and regulatory arbitrage: structured investment vehicles (SIVs) issued asset-backed commercial papers (ABCPs) to finance investment in mortgage-backed securities and structured credit products, in effect transforming an abundance of cheap short-term liquidity into longer-term credit investments. This model depended on a continuation of the liquidity glut and a resilient housing market.

The real-estate bubble would not have been as pronounced as it was without the financial innovation

which made available increased volumes of cheap credit to a wider pool of potential property owners. This was particularly true for the enormous expansion of market segments which hitherto had been niche markets –the subprime and Alt-A segments. Financial innovation also allowed a general increase in the loan volume *via* securitisations, which were then placed with investors worldwide. In principle, this spreading of risk is a good thing as it avoids risk concentrations in any given national financial system. Indeed, from a US point of view it is undeniably favourable that the blow to the US economy from the housing recession is being cushioned by the fact that some of the pain is borne by foreign investors. However, the scale of the US housing bubble led to the build-up of enormous exposures worldwide to the US real estate market, directly and indirectly through the securities built on these assets, and to serious imbalances in the financial system. These were compounded by deficiencies in the origination process, the structure of financial markets and the risk management approaches of many investors.

VALUATION ISSUES: FAR MORE THAN AN ACCOUNTING ISSUE

While the above-mentioned factors can be regarded as the causes of the crisis, other factors aggravated it, once the chain of events was set in train. In this context, a considerable controversy has broken out in the aftermath of the crisis, whether fair value (or mark-to-market) accounting can be blamed for deepening the crisis. Fundamentally, of course, mark-to-market has a procyclical effect by definition. Consequently, the controversy should usefully be concentrated on the question of whether this effect is materially important (especially in a crisis situation) and, if so, what can be done about it.

The more extensive use of fair value accounting reflects, of course, the changing nature of banks' business models, which led to a greater focus on the dynamic management of risk portfolios. This in turn led to an increasing share of trading and tradable assets, including the strong growth of hedging instruments. Historical cost accounting proved inadequate for these developments. Fair value accounting has, by now, become the norm for assets held for trading or available for sale. In fact, for Deutsche Bank, at year-end 2007, 76% of assets and 51% of the liabilities on our consolidated balance sheet were carried at fair value. Furthermore, modern risk management and fair value accounting go hand-in-hand, as risk hedges would not be feasible without fair value accounting. Similarly, without fair value accounting, it would not be possible to calculate value-at-risk (VaR) as well as economic and regulatory capital for market risk.

This importance of valuations for risk management tools demonstrates the wider benefits of fair value accounting. It acts as an early warning system, where losses show up in banks' profit and loss accounts, before they materialise in the real economy. It provides a clearer picture on the positions and risks and increases the transparency for investors and counterparties. Thus, mark-to-market imposes stricter discipline on banks' risk management and improves market discipline. Conversely, in the case with historical cost accounting, banks must own up to the full consequences of past investment decisions and, if need be, are forced to take remedial action. Fair value accounting is therefore not neutral, but has a direct, beneficial impact on banks' actions.

Against this background, we need to address a fundamental question that, in my view, has not yet been given sufficient attention: given the fact that ever larger parts of banks' balance sheets have become more tradable and given that the originate-and-distribute model will survive this crisis, how can we define an accounting regime that is suitable, consistent and meaningful for tradable and non-tradable assets? Or, to focus on the crucial question: how can we define accounting rules for the borderline between these two categories? There is widespread consensus that fair value accounting is the best accounting rule for all tradable assets. At the same time, not every asset a bank holds is liquid and many probably never will be (or, possibly, should be in the interest of financial stability) and for those assets traditional accrual accounting will continue to be the right regime. The difficult case, however, is the borderline area between these two categories represented by assets that may fall into either category and where a bank may choose to shift assets between held-to-maturity and the trading book depending, for example, on market circumstances and the bank's risk appetite. For these cases, consistent accounting rules need to be defined for moving assets between the banking and the trading book. It goes without saying that corresponding regulatory requirements relating to capital and liquidity would

also need to be defined in a way that simultaneously paid due regard to financial stability and did not restrict banks' ability to alter their risk-return profile unduly.

To some extent, this issue is already on the table of the accounting boards (Financial Accounting Standards Board –FASB and International Accounting Standards Board –IASB), as the crisis has revealed a need to align the respective rules in the International Financial Reporting Standards (IFRSs) and US Generally Accepted Accounting Principles (GAAP) accounting frameworks on shifting assets between accounting categories. But like the procyclicality of fair value, this issue needs to be seen not just as an accounting issue, but as a financial stability issue as well. It is thus essential for central banks which are the protectors of financial stability, to become involved. The debate is complicated by a third issue that comes into play: banks use internal models and proprietary data to value structured credit products. If these products were to have a future, this needs to change. Valuation models have to follow generally accepted accounting rules and the underlying price data has to become available to all market participants. It is not by accident that equity derivatives, which are easily as complex as structured credit products, have been much less affected by this crisis. The rules to calculate indexes are well-known and the equity market enjoys a sophisticated infrastructure to provide underlying price information.

Risk management:
comprehensive approach needed

It would, of course, be inappropriate to suggest that the weakness of the US mortgage market, and the shortcomings of structured products or fair value, were the only deficiencies leading to the current crisis. In truth, in many banks, advances in risk management had not kept pace with financial innovation. Moreover, many banks had concentrated their efforts on implementing Basel II. The Basel framework, however, focuses on assets held in the banking book. In contrast, the current crisis concerns assets that were often held in the trading book or even in off-balance sheet structures. When prices dropped precipitously or the market liquidity for the assets suddenly evaporated, banks were forced to hold on to –and to fund– assets that were expected to be sold on to other investors.

In fact, it is necessary to clearly distinguish between two groups of banks: the first group, which includes Deutsche Bank, is represented by banks that applied the "originate-and-distribute" model properly. Proper application means that a bank ensures that:

- there is due diligence of underlying credit quality;

- its structured credit portfolio is a function of client demand;

- that junior and first-loss exposures are fully and effectively hedged or sold.

At Deutsche Bank, the average pre-crisis turnover time for structured credit products was 60-90 days. This stands in contrast to the second group of banks that instead, took the risk back on through the back-door by investing in these assets or by providing back-up lines for off-balance sheet vehicles (SIVs, conduits) that invested in these assets.

The difference between the two groups can be seen clearly by the size of the losses that they suffered. The former group got caught by the unexpected freezing of the markets and thus experienced warehouse risk –but the losses were thereby limited to the amount of flow business in any given period of time and to the price declines experienced between origination and resale. In contrast, the latter group was exposed with the full nominal value of their exposure.

It also turned out that the latter group of banks often suffered from significant deficiencies in corporate governance. Common themes included observations that risk management was not sufficiently independent, IT systems were incomplete and could not aggregate risks on a group-wide basis, and top management failed to effectively communicate the bank's risk appetite to the entire institution. Similarly, too many institutions had "outsourced" parts of their risk management, *i.e.* relied excessively on the judgement of rating agencies rather than performing their own due diligence.

Albeit to varying degrees, both groups suffered from deficiencies in their risk models and their stress testing. Most banks assumed that hedges would work even under stressed circumstances. Increasingly however, indices became traded in their own right

(as they retained their liquidity) and de-linked from the underlying assets. Having seen the wild gyration of the ABX indexes, which were often used to hedge exposure to residential mortgages, it became quite clear that there is a significant basis risk between the index and the underlying mortgages.

There were also deficiencies in current liquidity management. Here, too, the scenarios employed for stress tests were not extreme enough, which resulted in an underestimation of the amount of liquidity needed and an overestimation of the degree of liquidity of assets held for this purpose. In several institutions, the internal pricing of liquidity was not strict enough and potential demand on liquid funds therefore not priced in sufficiently when risk positions were taken; often this was the result of liquidity risk management not being integrated adequately into overall risk management. Again, banks such as Deutsche Bank, where the management of credit, market, operational and funding/liquidity risk was fully integrated already well before the crisis unfolded, have reaped the benefits of these efforts.

With so many deficiencies, a big *mea culpa* from the financial industry is therefore necessary. However, as in any crisis, there were developments which would have been extremely difficult to foresee. Prior to the crisis, there were no indications that assets classes such as leveraged buy-outs (LBOs) and residential mortgage-backed securities (RMBSs) or RMBS and commercial mortgage-backed securities (CMBSs) were strongly correlated based on the respective fundamental drivers for these asset classes. However, correlations between these (and other) asset classes did increase strongly as the crisis struck simply due to the fact that these assets were held by the same ABCP-financed vehicles. As markets seized, SIVs and conduits were unable to roll-over their funding and the assets rapidly lost in value as fire sales became necessary to raise liquidity. These factors led to simultaneous declines in the prices of assets that are fundamentally uncorrelated. Specifically, leveraged loan commitments, held for resale in the secondary markets, fell dramatically in value, despite being entirely uncorrelated with US housing markets. These loan products are essentially illiquid with price discovery normally occurring during syndication and being based on related market prices and cash flow analysis of relevant parameters. However, with markets disappearing, originators as well as investors had no guide-posts to draw upon and some prices fell well below those implied by models and fundamentals.

There is a broader message to be heeded here: more research needs to be carried out on liquidity risk in a market-based financial system. There is still a gap in our understanding of market dynamics in times of market illiquidity. While this is understandable, prior to this crisis, it seemed beyond reasonable credibility that liquidity could ever evaporate across almost all market segments. But this is nonetheless a serious omission. All existing risk models, all pricing models are essentially based on the implicit assumption that meaningful price signals are available on a continuous basis. Should it turn out that this assumption can no longer be sustained in the modern financial system, an entirely new approach to modelling correlations, market dynamics and stress scenarios would be needed.

REMEDIES: THE BLUEPRINTS ARE AVAILABLE –AND LOOK SIMILAR

Restoring confidence in financial markets will require a concerted, targeted and all-encompassing effort –but this will not happen by itself. The financial crisis has caused a widespread loss of trust in the financial system. Banks do not only have to rebuild their capital and strategies, but also the trust of investors, counterparties and depositors. True, financial institutions, as a matter of principle, do not favour ever-increasing regulation; yet, the business of financial institutions vitally depends on the preservation of financial stability and the general public's trust of the financial system. Given that regulation is necessary to sustain (or rebuild) capital and trust, banks would be well-advised to help frame these rules.

The loss of trust is especially pronounced in the markets for structured credit products. Many observers predict that the crisis will lead to a permanent demise of complex financial instruments, especially structured credit products, which many claim to lie at the heart of the crisis. However, just as the 1929-32 US stock market crash did not lead to the extinction of shares as an asset class and just as the emerging market crisis of the late 1990s did not lead to the permanent disappearance of emerging market asset, structured credit products will survive this financial crisis albeit probably in modified form.

At Deutsche Bank, we have, over the years, already developed the components necessary to successfully operate the originate-and-distribute model and to withstand even difficult market environments, such as the current one. In my view, these components are:

• integrated and independent risk management;

• full use of risk transfer, and robust underwriting and risk monitoring standards;

• comprehensive stress testing that complements traditional risk measures (value-at-risk –VaR, economic capital);

• effective and consolidated management of capital, funding and liquidity.

Contrary to what is occasionally argued these days, structured credit products are not inherently problematic. But these products are not sufficiently transparent and market infrastructure has not developed in line with the rapid growth of these markets. Collective action by market participants has failed to address these issues in time. If the financial industry does not manage to rectify matters quickly, now, we should not be surprised to see the public sector intervene. This would probably result in tighter regulation and fewer market-based structures but banks will have no one to blame but themselves.

Investors will only return to the markets for structured credit products when confidence returns. In a way, the situation is comparable to the events of the Great Depression, when a lack of transparency on company accounts aggravated the Dow's fall. It was only after the establishment of the Securities and Exchange Commission (SEC) in 1934, which set mandatory standards for the disclosure of listed company's accounts, that confidence could be restored, as investors were then able to assess the quality of companies' assets and evaluate share prices accordingly.

Similarly, today, market participants, with the help of the public sector, will need to establish mechanisms and ways to restore confidence in the markets, especially those for complex structured credit products. First, there is a need to build an infrastructure that reduces settlement risk by means of automation and netting. Standardisation will also play a role. Second, there is a need to increase transparency by pooling data on transaction volumes and prices. Originators need to disclose sufficient data on the underlying assets so as to enable investors to perform their own due diligence rather than to passively rely on third-party assessments, such as those of rating agencies. Current experience in those markets shows that transparency indeed makes the difference: while many banks find it difficult to place such products with investors, some succeed in doing so, because they provide comprehensive and credible information on the performance characteristics of these products and on the risks in the underlying portfolios. This allows investors to make their own analysis and make an informed investment decision.

As discussed above, though, the deficiencies revealed by the crisis are not limited to the area of structured credit products. Rather, a whole range of issues needs to be addressed by the private and the public sector. Fortunately, neither the financial industry nor public authorities are starting from scratch here. Indeed, many of the required reforms had already been set in train before the crisis struck as the following examples illustrate.

• The international banking community had already worked intensively on the issue of liquidity management well before the crisis struck. Already in spring 2006, the Institute of International Finance (IIF) had published principles for better liquidity management; and there is consensus that banks that had already implemented these recommendations have fared better than those that did not.

• Similarly, governance for risk management is a major, –though still underestimated– part of the Basel II accord, namely in the shape of the Internal Capital Adequacy Assessment Process (ICAAP). This underlines the commonly-held view that, had Basel II already have been implemented in 2006, the fall-out from the crisis would have been less severe.

• In an initiative prompted and coordinated by the Federal Reserve Bank of New York, major investment banks have worked jointly on reducing backlogs in the confirmation of trades in credit derivatives and on the greater automation of trade confirmations.

• In the European Union, financial supervisors had already taken first steps towards a more systematic

approach in the supervision of large and complex cross-border financial institutions.

Against this background, it is hardly surprising, but nonetheless augurs well that the three major, recently released reports, which list recommendations on how to enhance the functioning and resilience of financial markets, share a lot of common ground. Thus, the IIF's Committee on market best practices, the Counterparty Risk Management Group ("Corrigan III report") and the G7's Financial Stability Forum (FSF) all put governance and the processes for risk management at the heart of their recommendations. It is also remarkable and a testament to improved international cooperation, as well as an alignment of philosophies, that all three reports put emphasis on principles-based regulation, on international coordination, on close relations between the private and the public sector and display a preference for self-regulation over prescriptive measures.

As regards risk management, all three reports emphasise that financial institutions need to develop a risk culture that is commensurate with their business model and that is effectively transmitted from top-management to the entire organisation. There is also a large overlap in their recommendations in terms of the improvement of stress testing, better liquidity management, the management of off-balance sheet exposures, and the integration of quantitative and qualitative risk measures. Moreover, the reports are united in the belief that a comprehensive approach to risk management also needs to address product development and new product approval with a view to a life-cycle approach in assessing the risks inherent in complex financial products. Finally, all three reports touch upon the issue of compensation noting that there is a need to formulate principles that align compensation structures with long-term profitability and the risk appetite defined for the institution.

Moving beyond risk management *sensu strictu*, all three reports share the view that the above-mentioned problem of defining appropriate rules for the valuation of illiquid assets requires urgent attention. They are united in stressing the need for and the virtues of greater transparency, especially the detailed disclosure of exposures and the provision of more information on complex financial transactions. Again, our own experience shows that this can provide tangible, monetary benefits: our loan exposure management unit was able to place structured credit transactions, including first loss exposures, even in difficult market conditions. Due to the high level of transparency we provide on the pricing mechanism and underlying performance, investors never lost their confidence in the collaterised loan obligations (CLOs) that securitise Deutsche Bank's German mid cap exposure.

Given the differences in their composition, mandate and background, it is not surprising that there are also areas where the focus of reports deviates. Thus, for example, the "Corrigan III"-report devotes a substantial part of its recommendations to the infrastructure for over-the-counter (OTC) derivatives trading, focusing on the creation of a central counterparty (CCP) and the establishment of technologies to confirm and settle trades and determine exposures rapidly. In turn, only the IIF and the FSF reports give recommendations on rating agencies urging them to address potential conflicts of interest, to improve the ratings process and to increase transparency on rating methodologies.

Finally, given the prominent role that liquidity issues have played in the crisis, it hardly comes as a surprise that the role of central banks receives prominent coverage in the reports. In an effort to calm markets and prevent a spillover of financial market turmoil into the real economy, central banks injected substantial amounts of liquidity into the financial system. The professional and timely action by central banks certainly had a calming effect on financial markets. However, reflecting the global nature of the crisis, there is a well-justified call for closer international coordination as well as an alignment of central banks' instruments and policies for the provision of emergency liquidity. The question is also being raised as to what is the appropriate role of central banks in financial supervision, duly recognising the potential for creating moral hazard issues. On a related issue, the recent crisis period has also rekindled the debate on whether central banks should take into account asset price bubbles more proactively when setting monetary policy. True, it is difficult to say with

any certainty whether instances of unusual price dynamics constitute a bubble and undoubtedly, central banks will be blamed if they try to prick such bubbles. Yet, considering the economic dislocation that is caused by the bursting of the bubbles –such as we are witnessing today– there is, in my view, a strong case for central banks to act pre-emptively to stave off greater damage in the future.

Financial markets are at the heart of modern economies and there can be no doubt that the financial innovations seen over the last two decades have contributed positively to increasing the underlying growth rate of the global economy. In particular, the greater tradability of financial assets and financial risk has increased the amount of capital available as well as the efficiency of capital allocation. However, as the current financial crisis has painfully made clear, such a market-based financial system is less tolerant to weaknesses and mistakes; it therefore requires a sound financial infrastructure and highest standards for risk management both in financial institutions and in the work of financial supervisors and central banks.

Above all, this will require:

• an accounting regime that gives reliable, meaningful and consistent signals to all market participants and supervisors;

• adequate recognition for the central role liquidity plays in a market-based financial system and corresponding tools in the hands of financial institutions and central banks for dealing with liquidity risk;

• a financial market infrastructure that inspires confidence through full transparency on products and prices.

In addition, macroeconomic policy, especially monetary policy, must pay more attention to financial stability issues, naturally with a global perspective. A tall order? No doubt– but the blueprints for this are on the table; it will be up to the financial industry and the public sector to jointly take the right decisions.